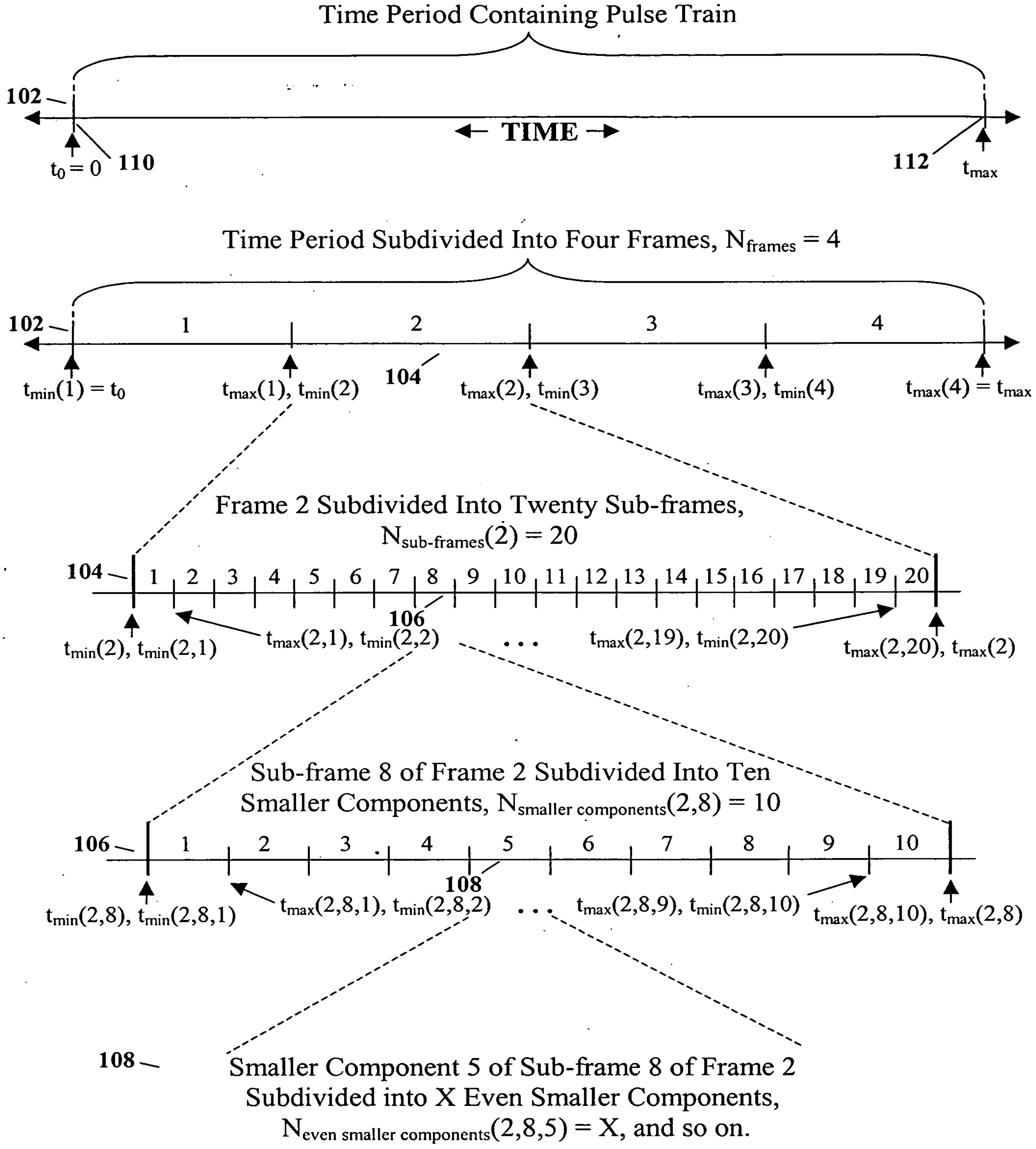


FIGURE 1. Time Period Layout Parameters

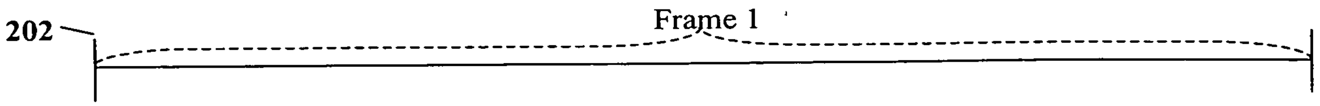


FIGURE 2a.

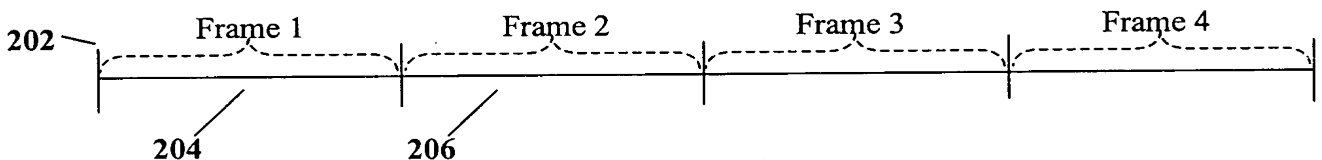


FIGURE 2b.

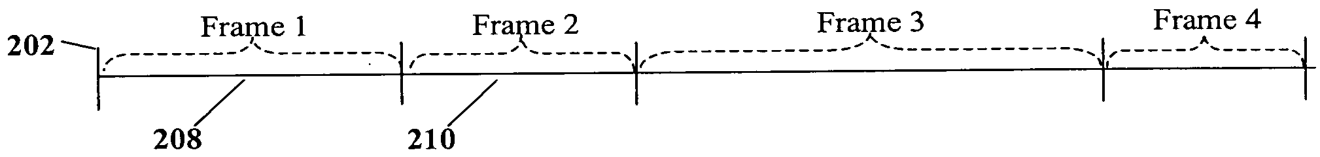


FIGURE 2c.

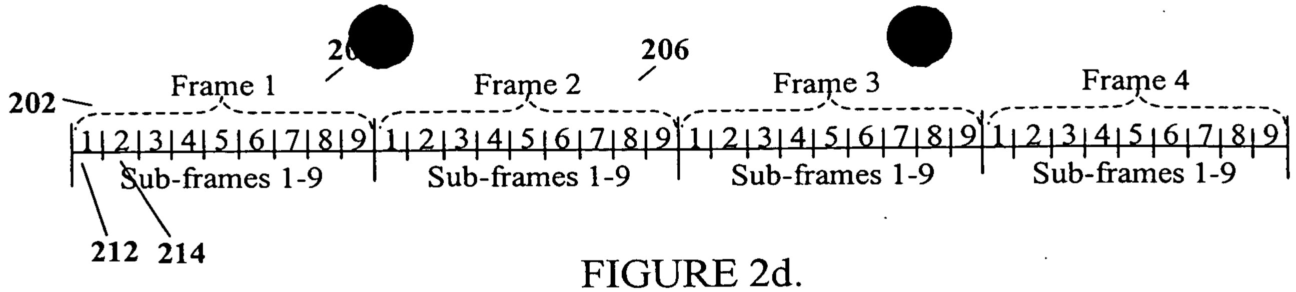


FIGURE 2d.

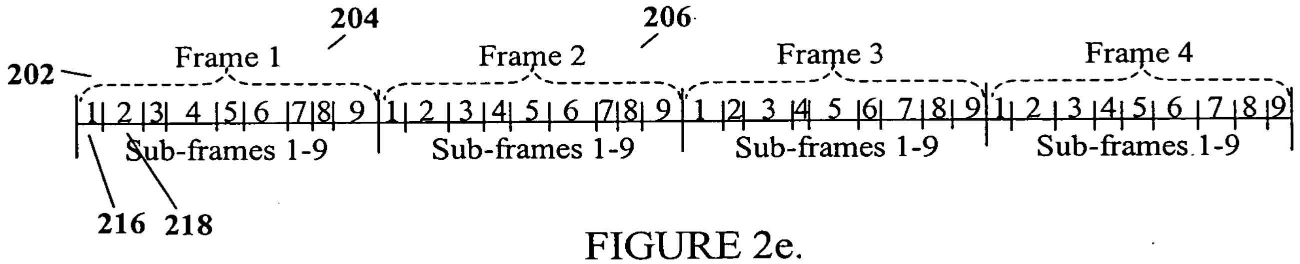


FIGURE 2e.

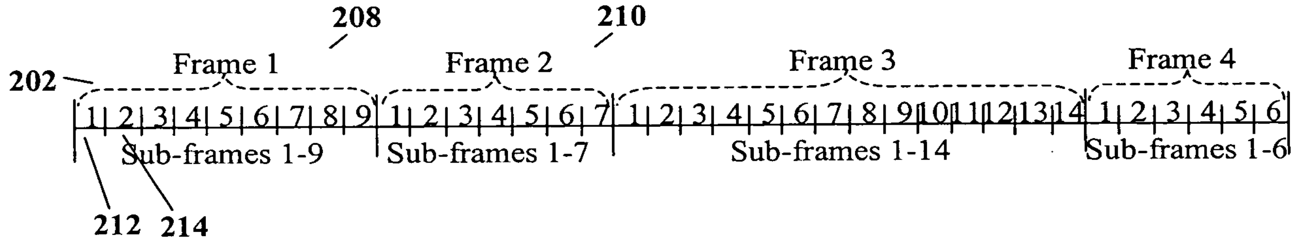


FIGURE 2f.

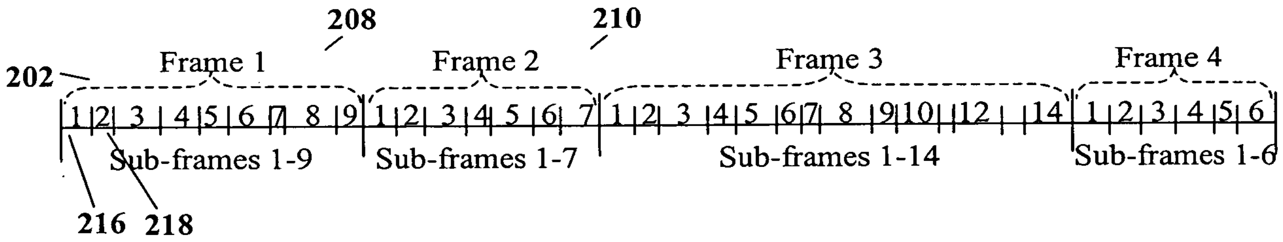


FIGURE 2g.

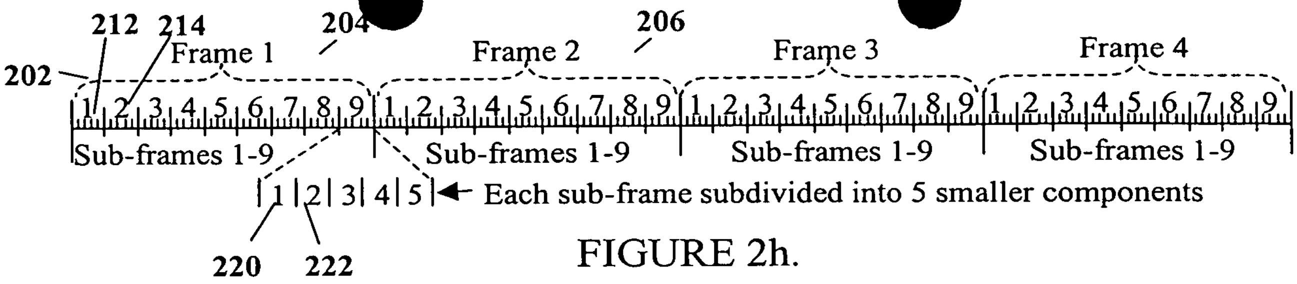


FIGURE 2h.

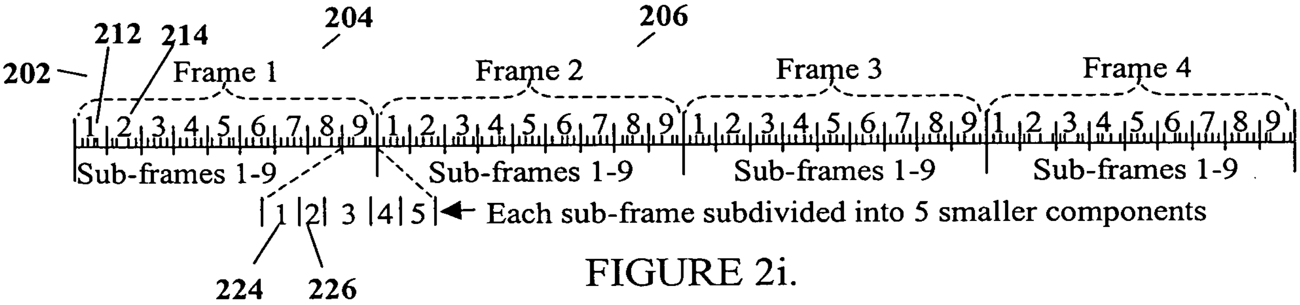


FIGURE 2i.

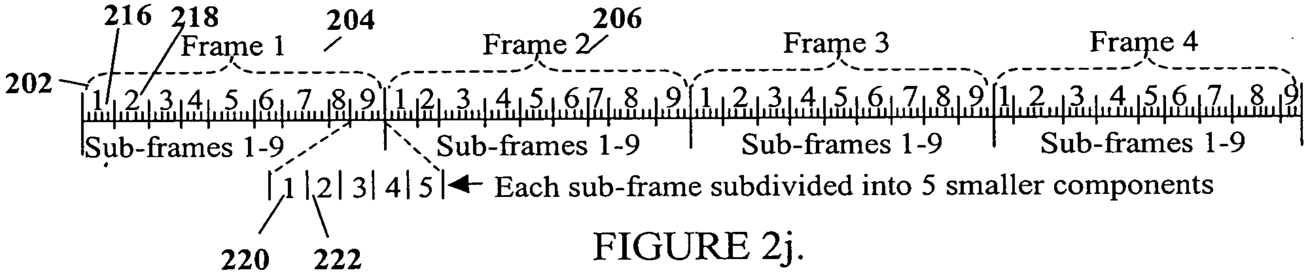


FIGURE 2j.

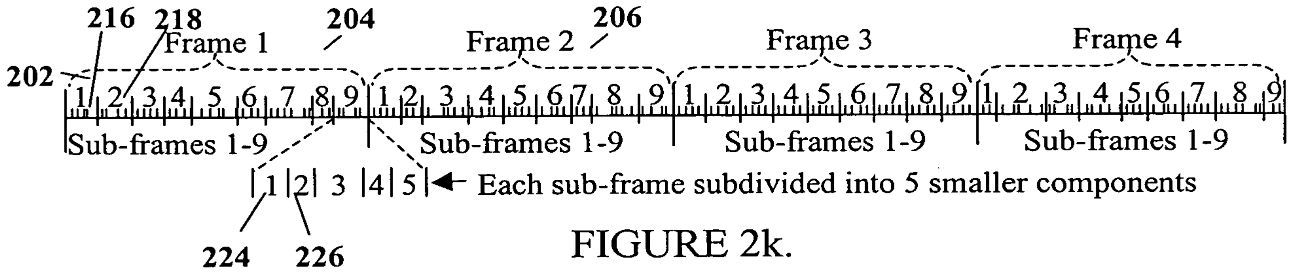


FIGURE 2k.

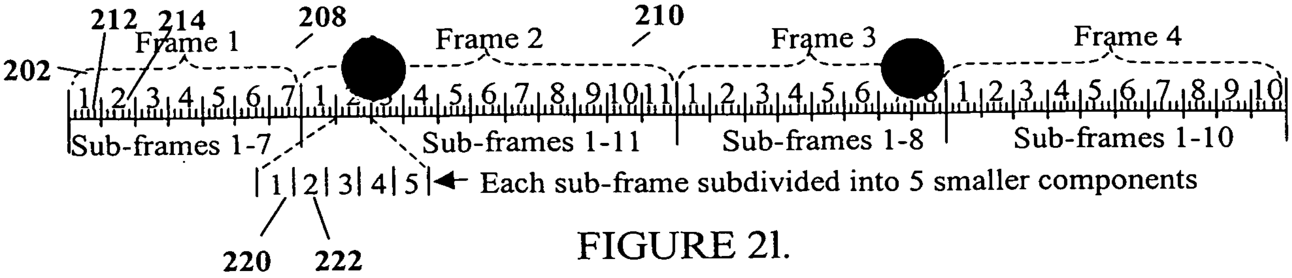


FIGURE 2l.

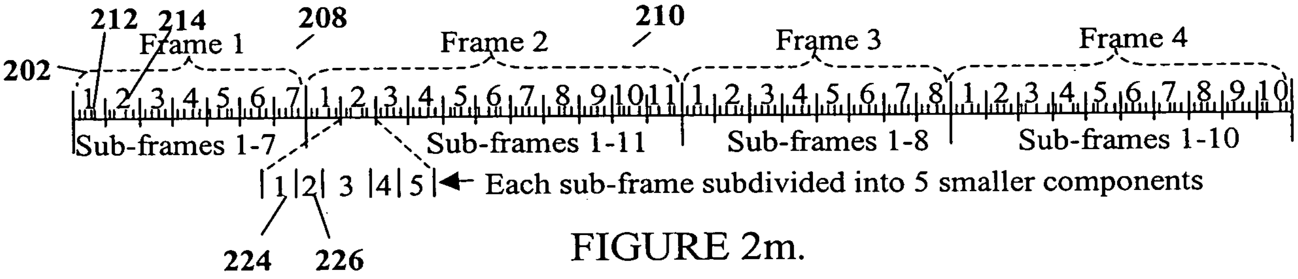


FIGURE 2m.

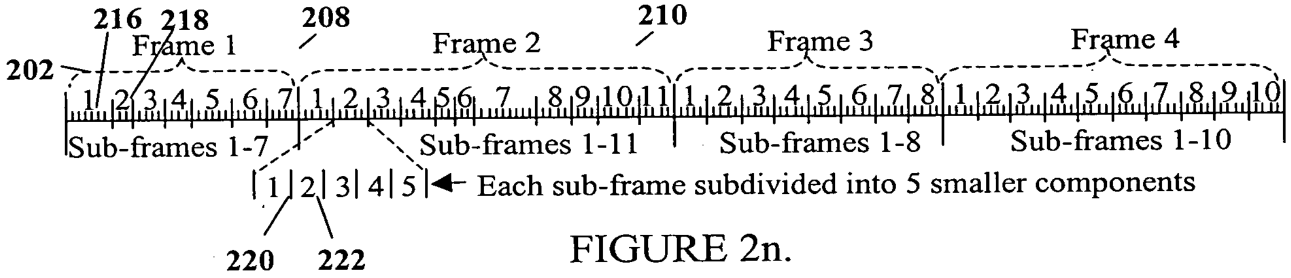


FIGURE 2n.

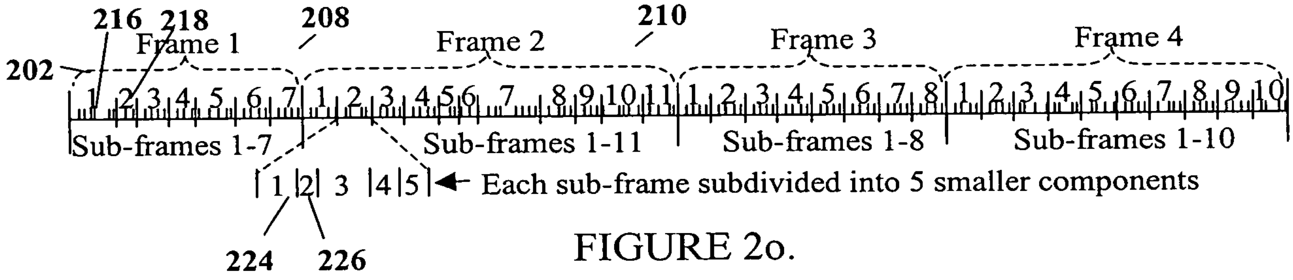


FIGURE 2o.

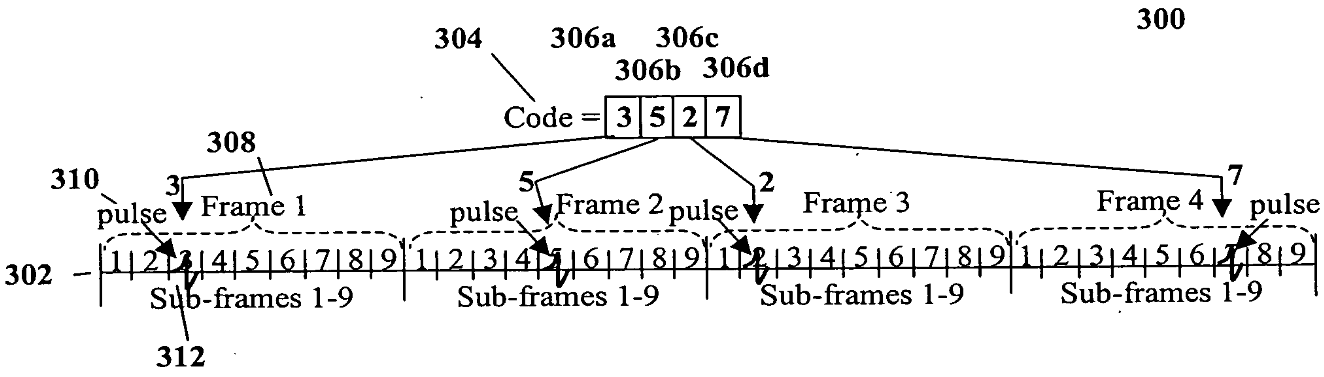


FIGURE 3a

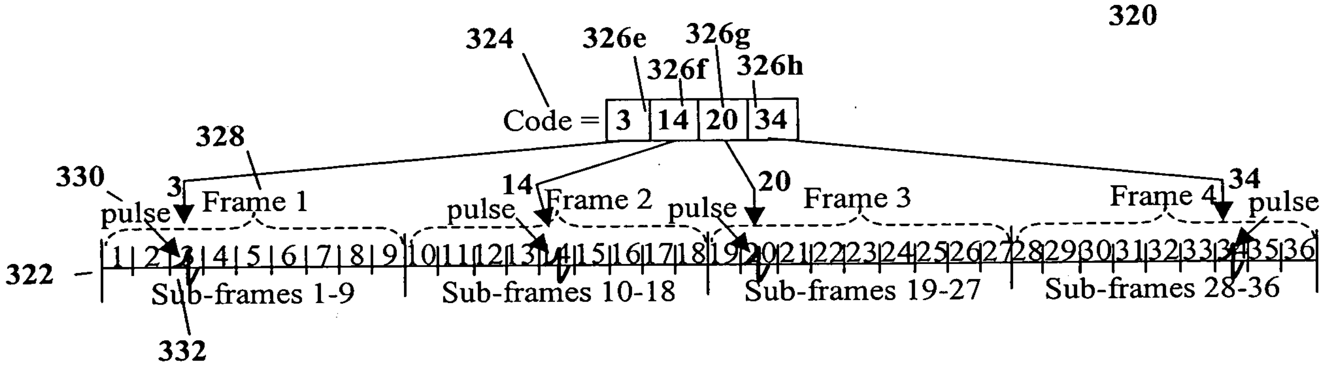


FIGURE 3b

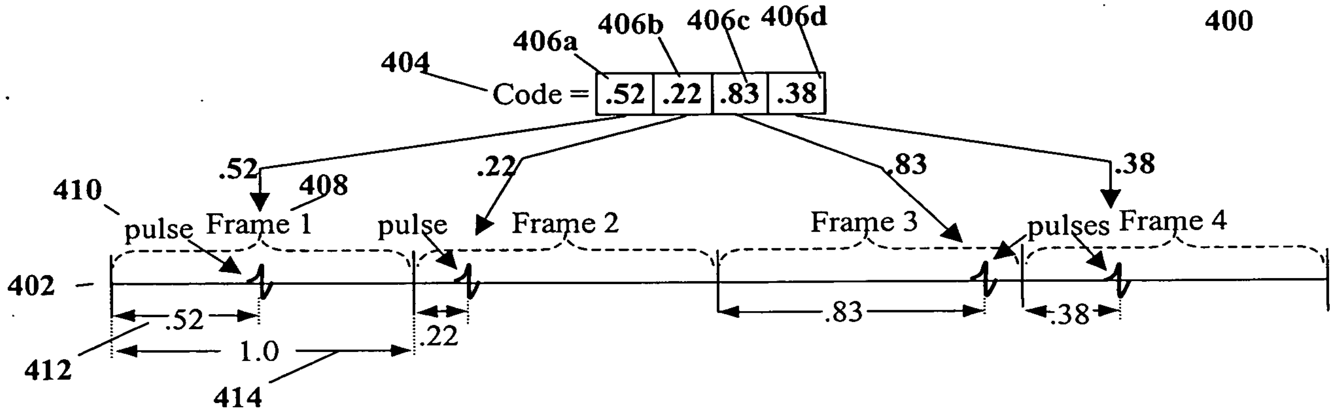


FIGURE 4a

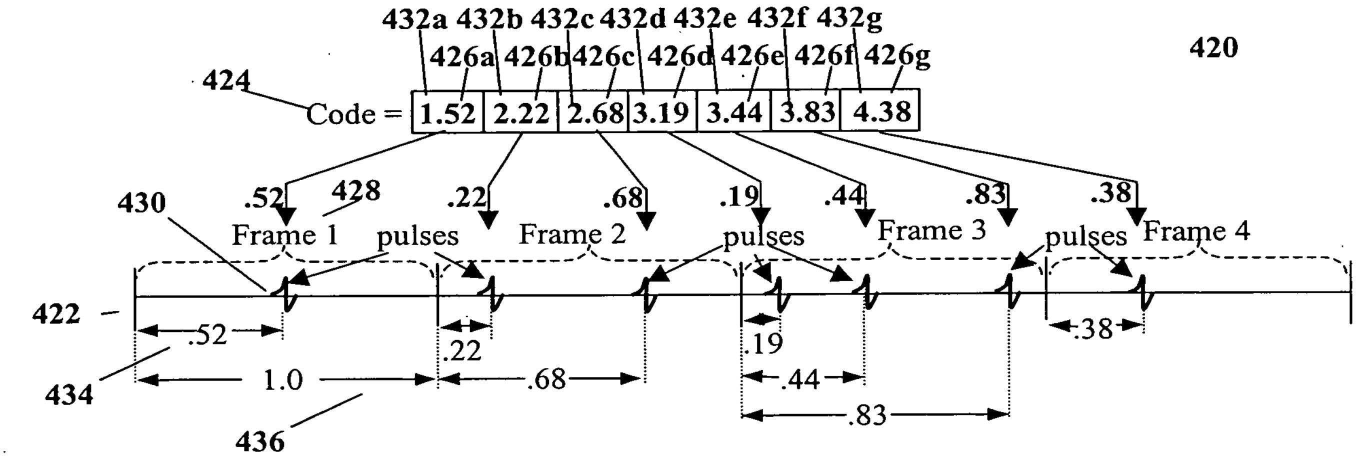
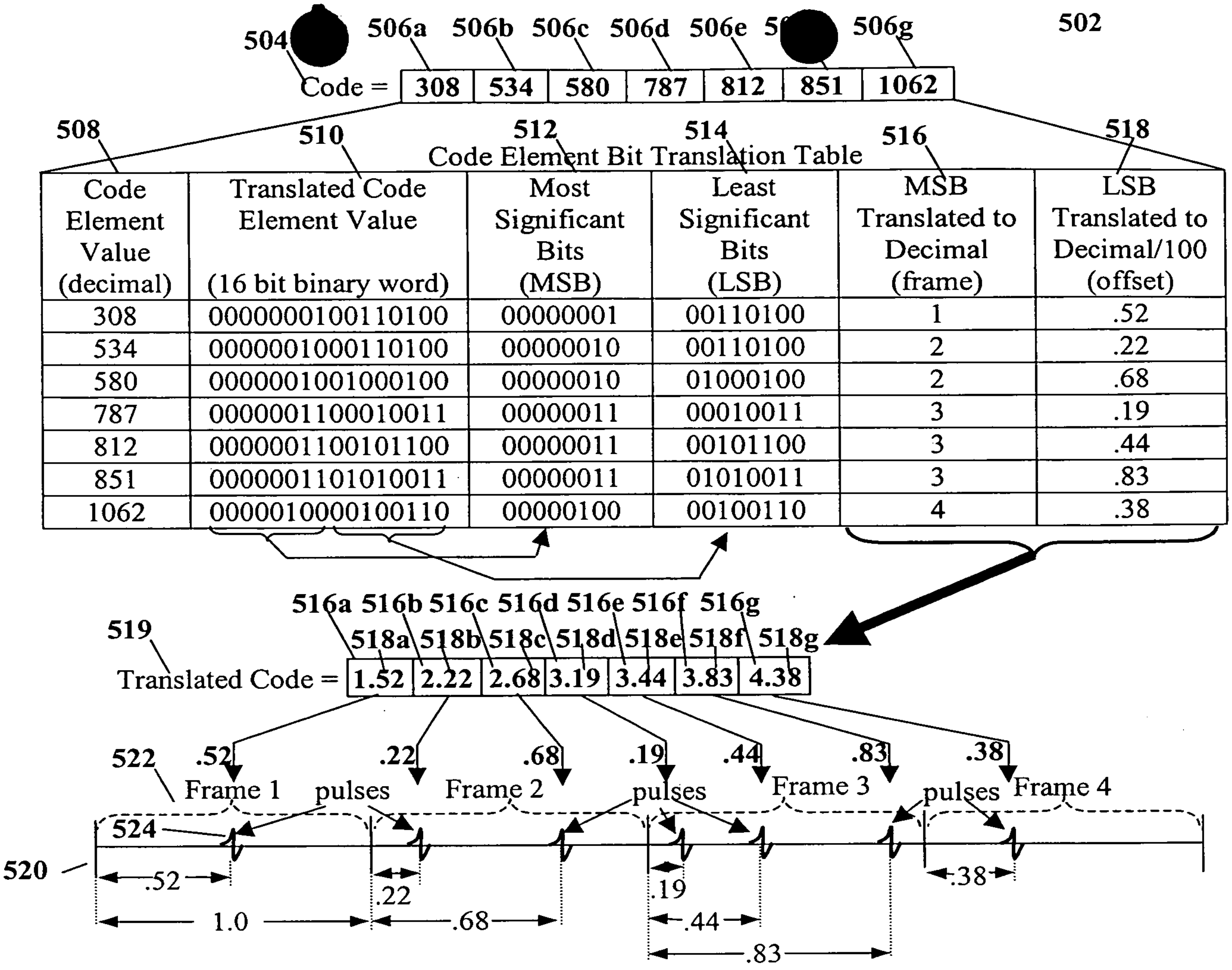
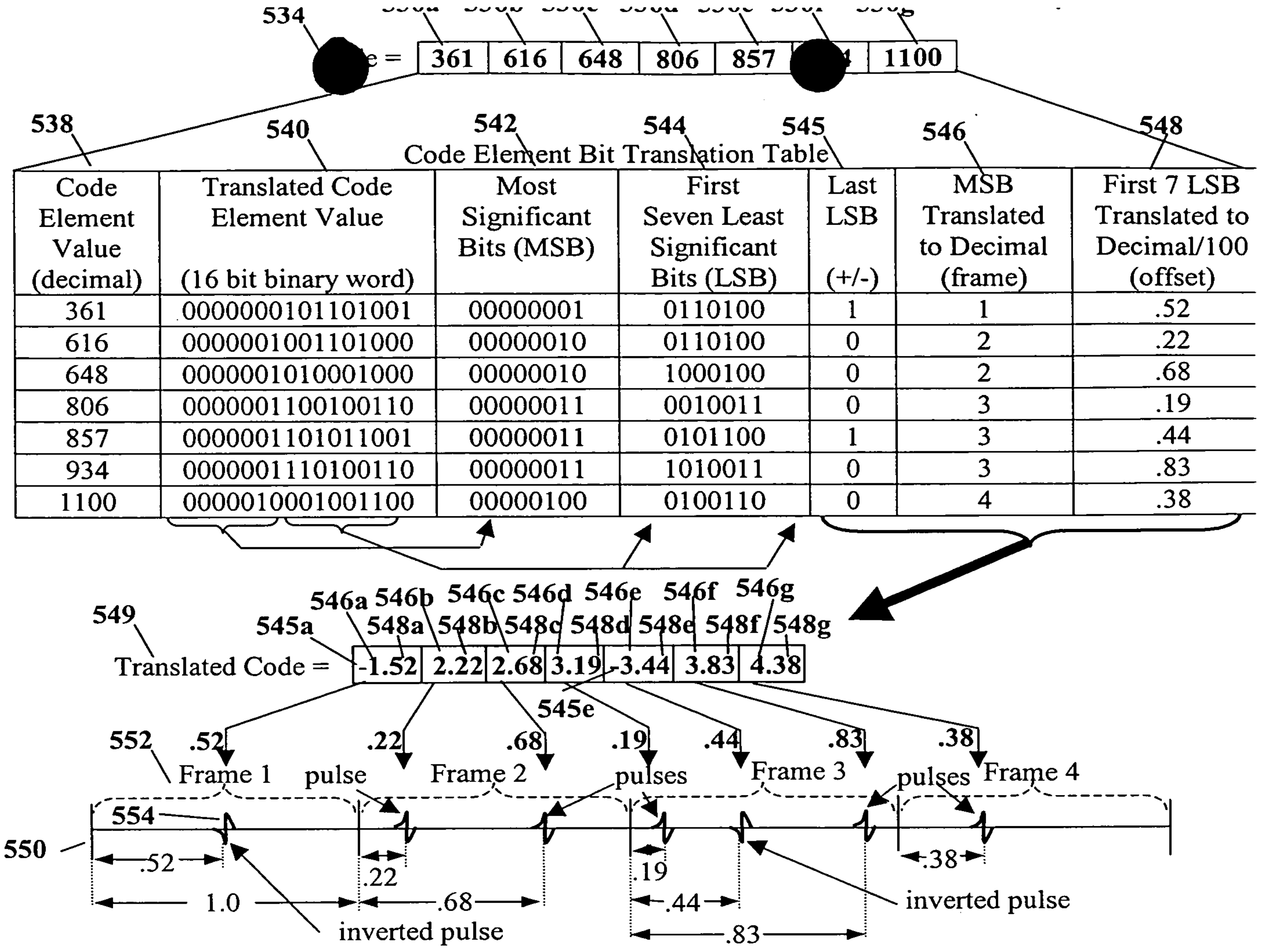


Figure 4b



Code Element Value (decimal)	Translated Code Element Value (16 bit binary word)	Most Significant Bits (MSB)	Least Significant Bits (LSB)	MSB Translated to Decimal (frame)	LSB Translated to Decimal/100 (offset)
308	0000000100110100	00000001	00110100	1	.52
534	0000001000110100	00000010	00110100	2	.22
580	0000001001000100	00000010	01000100	2	.68
787	0000001100010011	00000011	00010011	3	.19
812	0000001100101100	00000011	00101100	3	.44
851	0000001101010011	00000011	01010011	3	.83
1062	0000010000100110	00000100	00100110	4	.38

FIGURE 5a



Code Element Bit Translation Table

Code Element Value (decimal)	Translated Code Element Value (16 bit binary word)	Most Significant Bits (MSB)	First Seven Least Significant Bits (LSB)	Last LSB (+/-)	MSB Translated to Decimal (frame)	First 7 LSB Translated to Decimal/100 (offset)
361	0000000101101001	00000001	0110100	1	1	.52
616	0000001001101000	00000010	0110100	0	2	.22
648	0000001010001000	00000010	1000100	0	2	.68
806	0000001100100110	00000011	0010011	0	3	.19
857	0000001101011001	00000011	0101100	1	3	.44
934	0000001110100110	00000011	1010011	0	3	.83
1100	0000010001001100	00000100	0100110	0	4	.38

FIGURE 5b

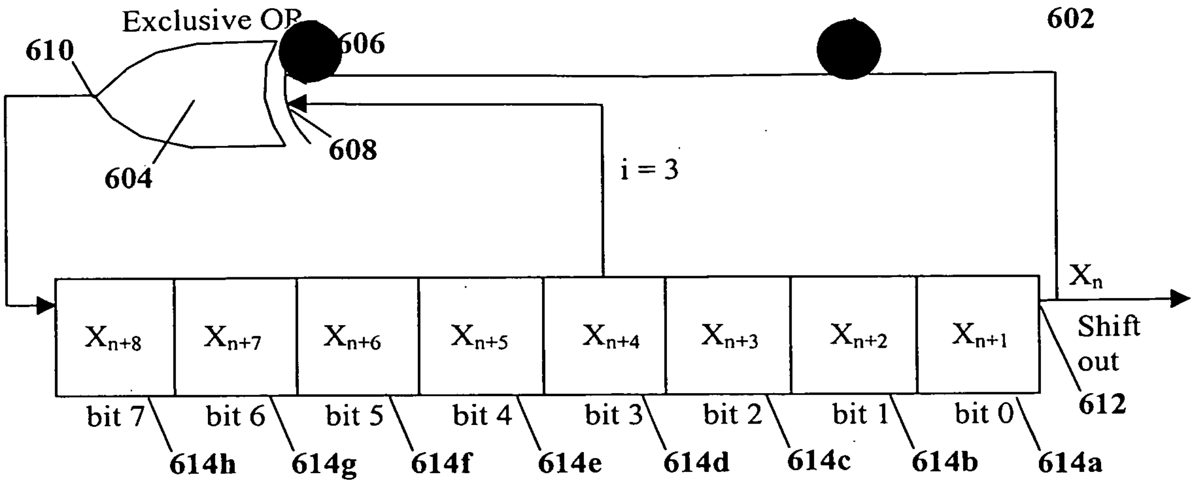


FIGURE 6a. Linear Feedback Shift Register

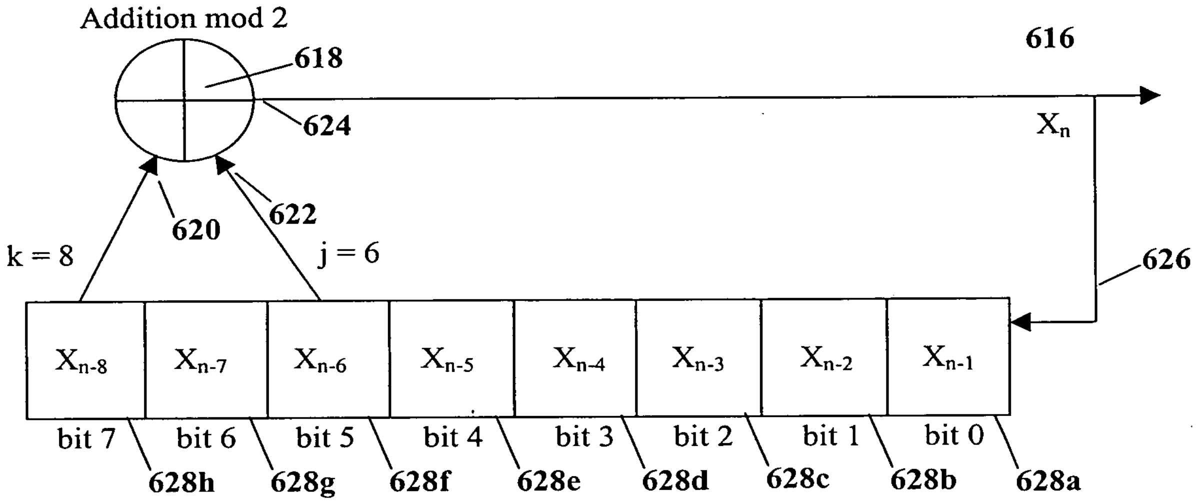


FIGURE 6b. Lagged-Fibonacci Shift Register Generator

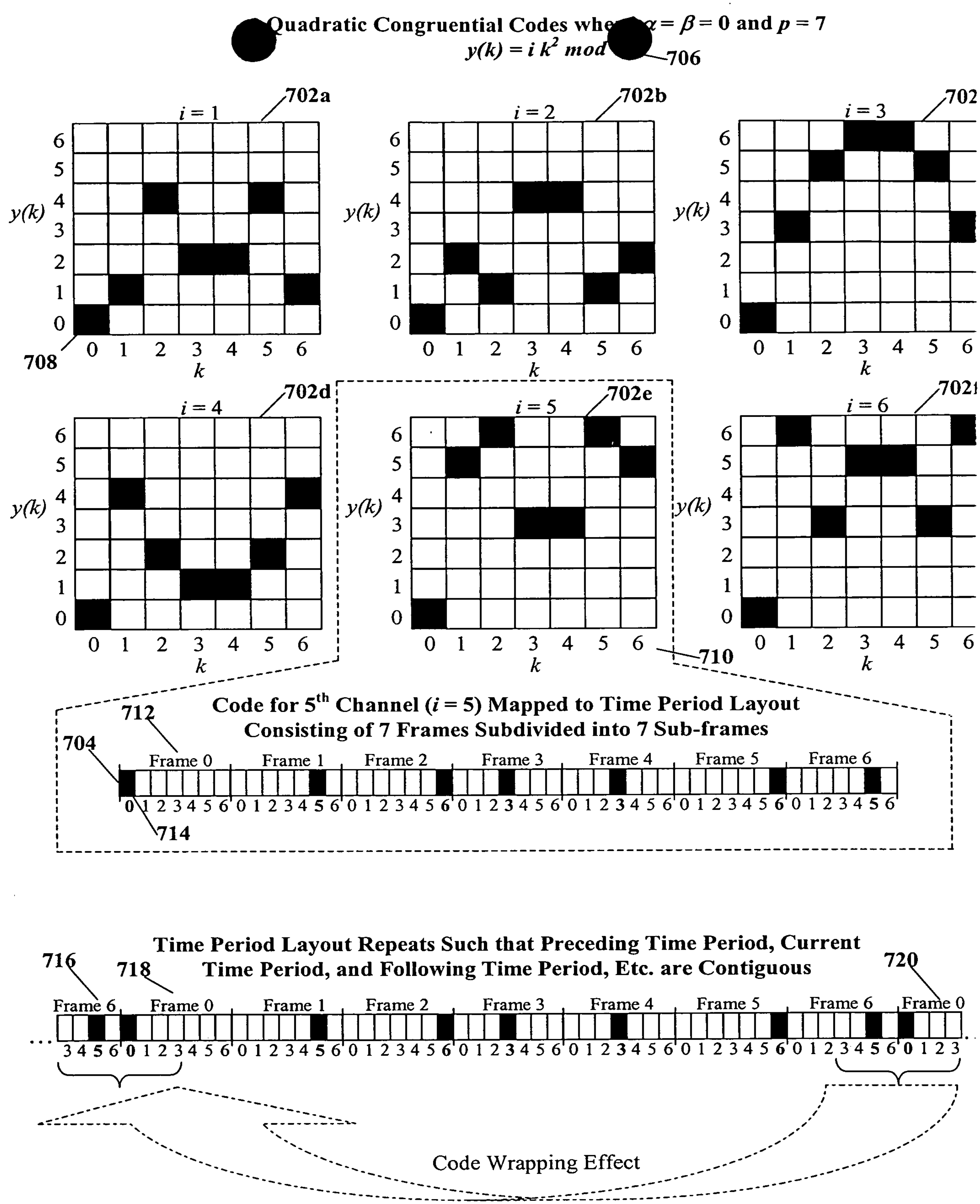

Quadratic Congruential Codes wh[illegible] α = β = 0 and p = 7
y(k) = i k² mod[illegible]
706
702a
i = 1
702b
i = 2
702
i = 3
702d
i = 4
702e
i = 5
702
i = 6
y(k)
k
0 1 2 3 4 5 6
708
710
Code for 5th Channel (i = 5) Mapped to Time Period Layout Consisting of 7 Frames Subdivided into 7 Sub-frames
712
704
714
Frame 0
Frame 1
Frame 2
Frame 3
Frame 4
Frame 5
Frame 6
Time Period Layout Repeats Such that Preceding Time Period, Current Time Period, and Following Time Period, Etc. are Contiguous
716
718
720
Code Wrapping Effect

FIGURE 7.

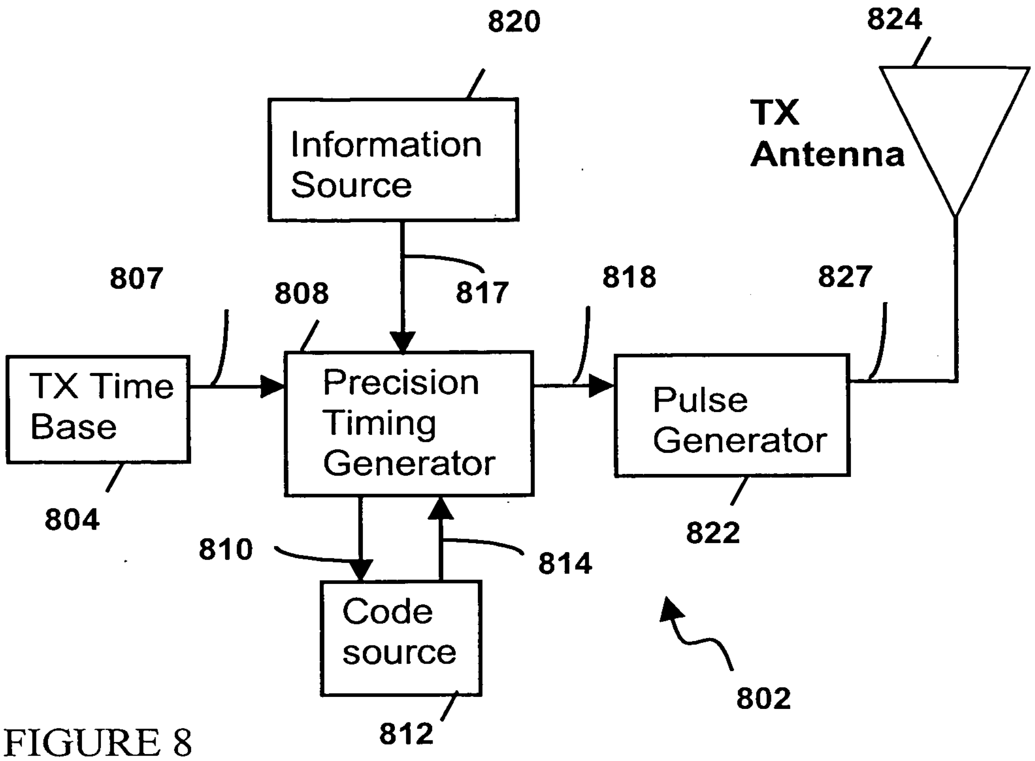
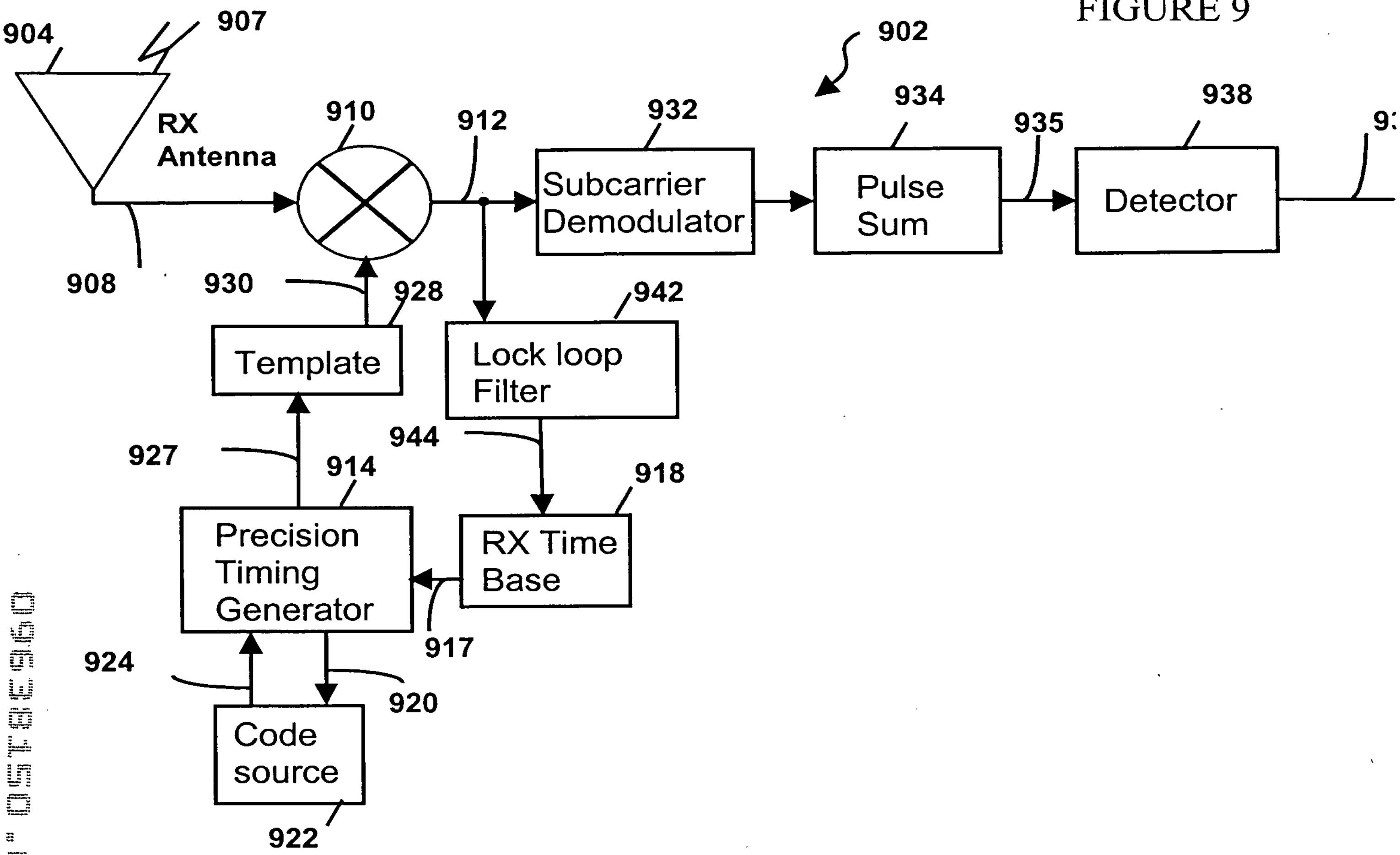

820
824
Information Source
TX Antenna
807
808
817
818
827
TX Time Base
Precision Timing Generator
Pulse Generator
804
810
814
822
Code source
812
802

FIGURE 8

FIGURE 9


902
904
907
RX Antenna
908
910
912
930
928
Template
932
Subcarrier Demodulator
934
Pulse Sum
935
938
Detector
9:
942
Lock loop Filter
944
927
914
Precision Timing Generator
918
RX Time Base
917
924
920
Code source
922

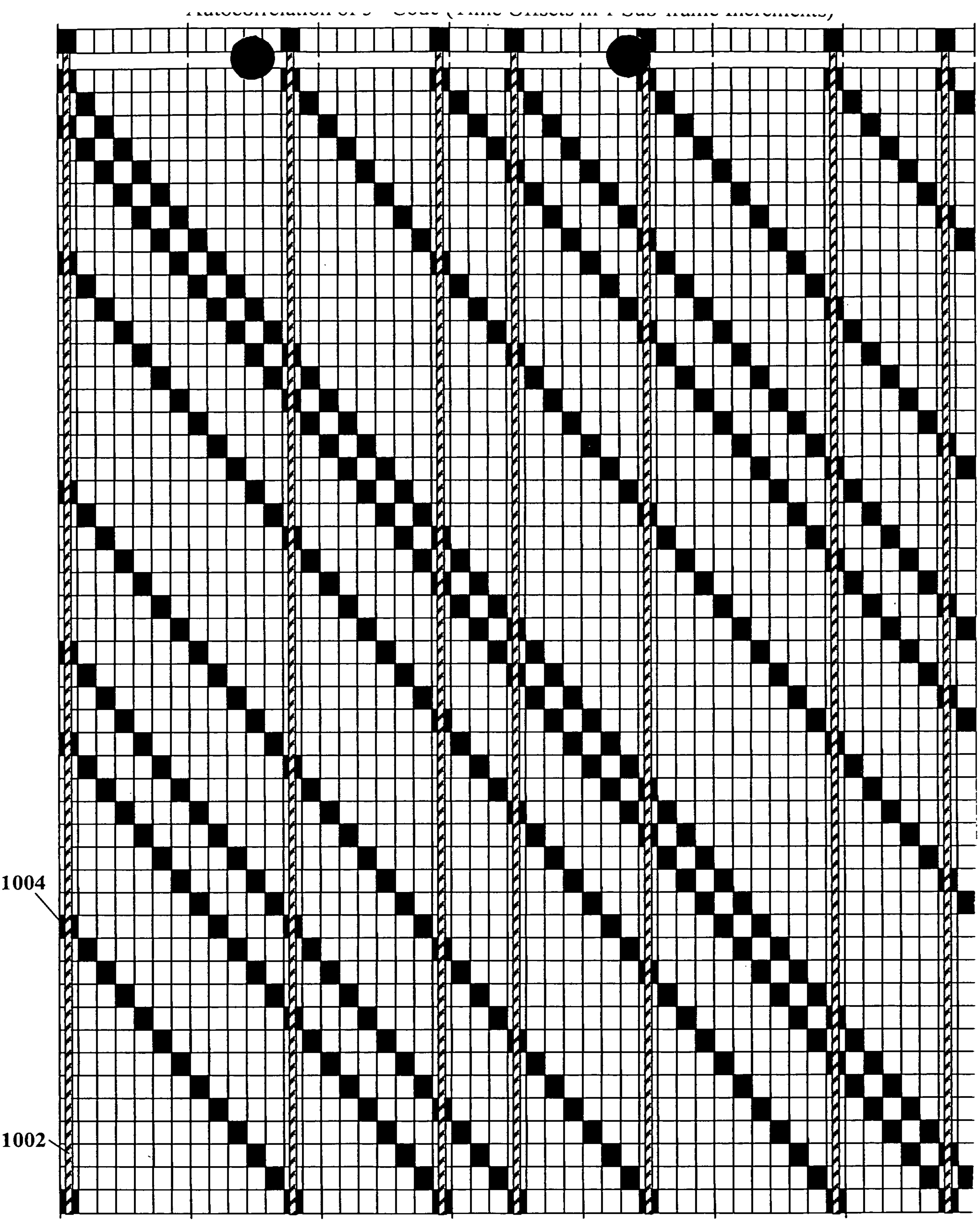

Autocorrelation of
Code (Time Offsets in 1 Sub-frame Increments)
1004
1002

FIGURE 10.

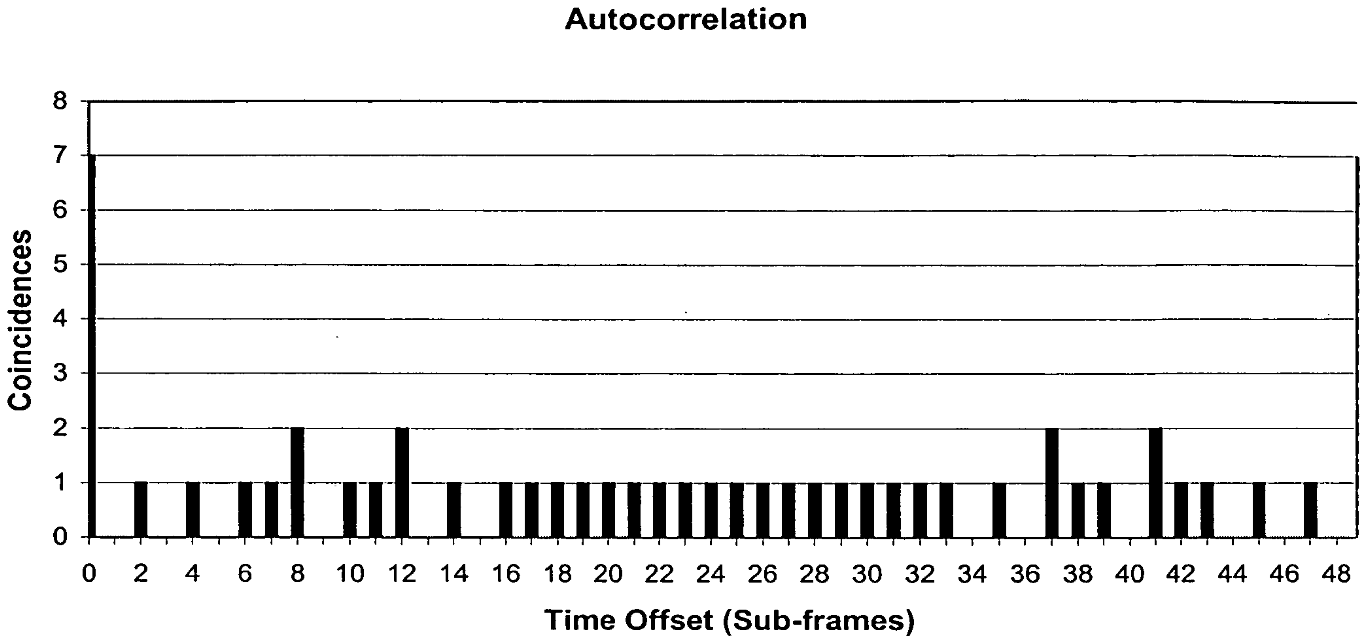


FIGURE 11.

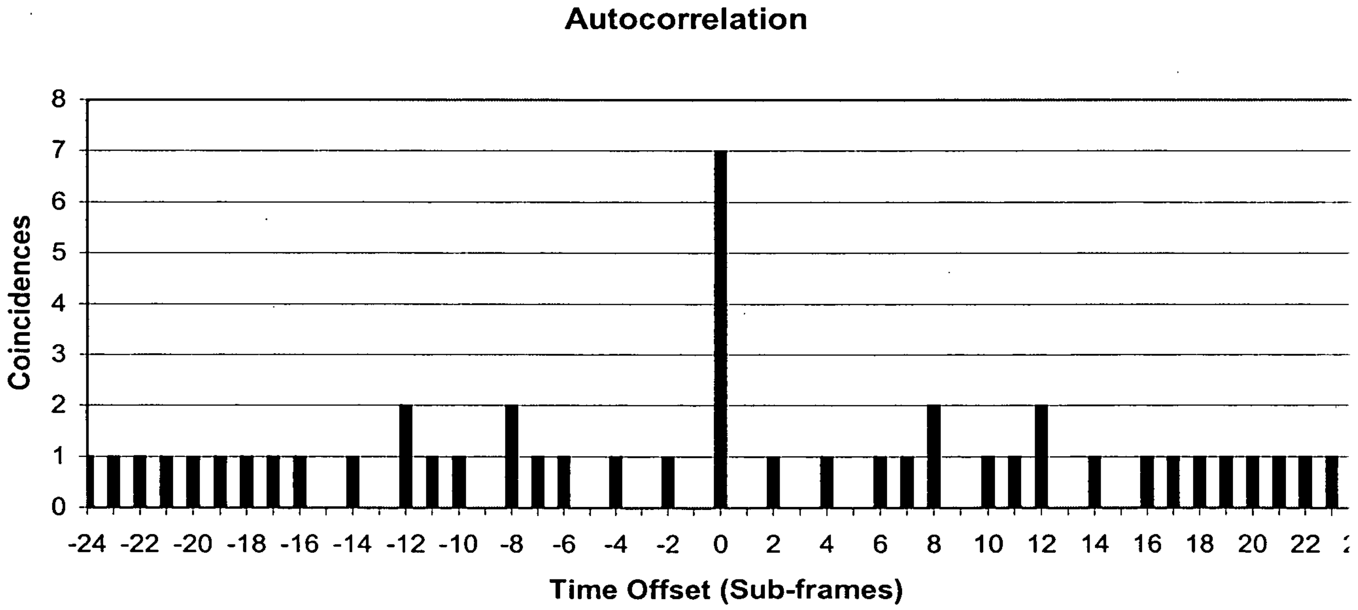


FIGURE 12.

Cross-correlation of 5 and 6 Codes (Time Offsets in 1 Sub-frame Increments)

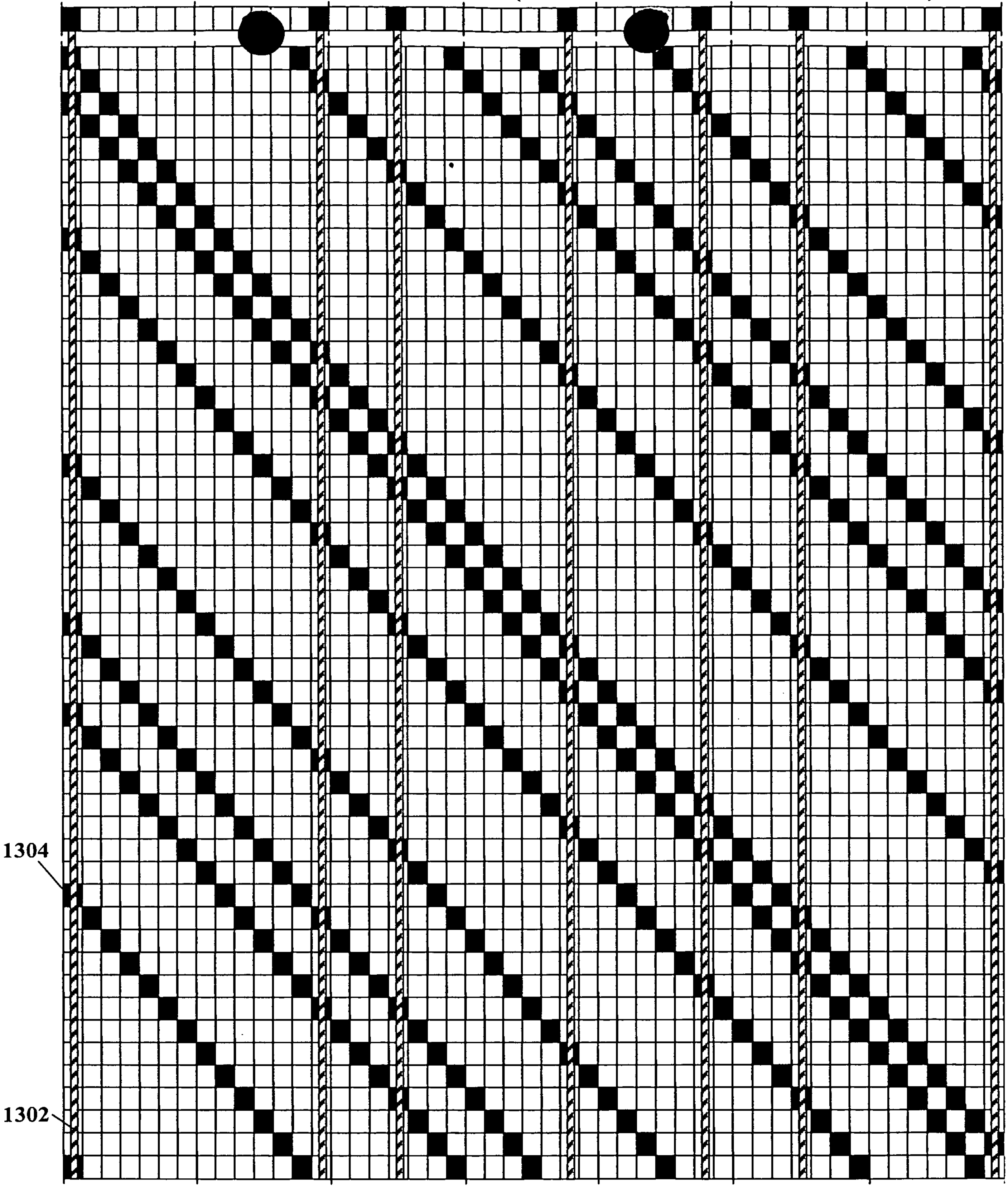


FIGURE 13.

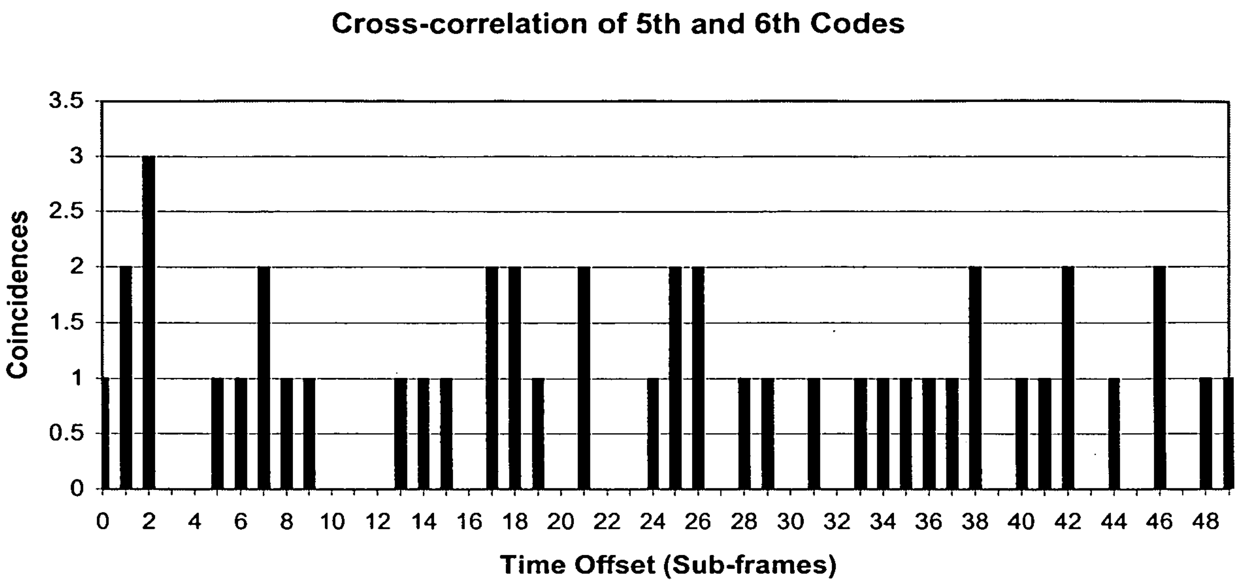

Cross-correlation of 5th and 6th Codes
Coincidences
3.5
3
2.5
2
1.5
1
0.5
0
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34
36
38
40
42
44
46
48
Time Offset (Sub-frames)

FIGURE 14.